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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,810	11/30/2001	Mark J. Halstead	EMS-02301	6622

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PATENT GROUP  
CHOATE, HALL & STEWART  
EXCHANGE PLACE, 53 STATE STREET  
BOSTON, MA 02109

EXAMINER
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PEYTON, TAMMARA R

ART UNIT	PAPER NUMBER
2182	8

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Offic Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/997,810	HALSTEAD ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tammara R Peyton	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 30 November 2001.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 53-56 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-52 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Election/Restrictions***

Newly submitted independent claims 53-56 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: these claims are for determining configuration data by determining whether the current configuration data should be reconfigured - classifiable in claim 713 subclass 2 or subclass 100.

Claims 48-51 link(s) invention I (claims 1-47 and 52) and invention II (claims 53-56). The restriction requirement between the linked inventions is subject to the nonallowance of the linking claim(s), claim 48-51. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are advised that if any such claim(s) depending from or including all the limitations of the allowable linking claim(s) is/are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 53-56 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-5, 7-16, 19-28, 31-37, 40-47, and 52, are rejected under 35 U.S.C. 102(e) as being anticipated by *West et al.*, (6,446,175).

As per claims 1, 2, 7, 9, 13, 14, 19, 21, 25, 26, 31, 34, 35, and 52, West teaches creating a communication path between first and second storage devices, comprising:

- creating a connection to a source volume on the first storage device and indicating that the source volume is not ready to transmit data on the communication path;
- determining which of said source volume and a destination volume contains an initial set of data;
- after successfully creating the connection to the source volume, creating a connection to the destination volume on the second storage device and initially indicating that portions of one of: the destination volume and the source volume do not contain valid copies data in accordance with which of said destination and said source volumes contains said initial set of data; wherein the destination volume accepts data from the source volume; and
- after successful creating the connections to the source and destination volumes, indicating that the source volume is ready to transmit data on the communication path.

West teaches creating a communication path via a primary logical volume and a secondary logical volume. (col. 6, lines 30-43) West teaches of determines which of the primary volume or secondary volume contain an initial set of data (col. 6, lines 45-61, col. 7, lines 65-col. 8, lines 1-40) by determining if a point-in-copy exists between the

primary volume and secondary volume on a particular portion of data. (col. 10, lines 42-52) The secondary volume will report that a change to the particular portion of data has occurred meaning that the primary volume will be aware that an invalid copy of this particular portion of data is stored on the secondary volume. (col. 10, lines 53-62) A primary controller of the primary volume will issue a “snap” operation which will initiates a copy operation from the primary volume to the secondary volume.

A “snap” or “snapping” operation is a process by which pointers that represent the mapping of the primary volume to a physical storage in disk array 112 (Fig.1) are copied from internal memory associated with the primary volume to internal memory associated with a snap volume, 130, Fig.1. The snap volume 130 recognizes that cylinders of the primary volume are out of sync with the secondary volume; so, a snapshot copy is then transferred from the primary volume to the secondary volume over the link in order to place the two volumes in sync. It is inherent that the ‘out of sync’ data would be confirmed as an invalid copy of the stored data. (col. 9, line 5-63)

As per claims 3, 4, 15, 16, 27, 28, 36, and 37, West inherently teaches wherein a table containing configuration information (configuration memory, 226, Fig.2) for the primary and secondary volumes.

As per claims 8, 10-12 20, 22-24, 32, and 33, West teaches initialing a background copy operation to copy data from the source volume to the destination

volume and in response to the particular portion being indicated as containing invalid data (out of sync tracks), copying data corresponding to the particular portion from the destination volume to the source volume prior to completing the host I/O operation. (col. 9, line 5-63)

As per claims 40, 42, 44, and 46, *West* teaches initiating a background copy operation (restore operation) to copy data from the destination volume to the source volume if the destination volume contains the initial set of data; issuing, from a host, an I/O operation to a portion of said source volume; if said destination volume contains said initial set of data, determining if said portion is invalid indicating that said portion has not yet been copied to said source volume, and if said portion is invalid, using said destination volume for said I/O operation, and using said source volume for said I/O operation otherwise; and if said volume contains said initial set of data, using said source volume for said I/O operation. *West* teaches initialing a restoration operation that will copy data from the destination volume to the source volume if the initial set of data (point-in-copy) exists on the destination volume. (col. 15, lines 44-col. 16, lines 1-30)

As per claims 41, 43, 45, and 47, *West* teaches wherein destination volume contains said initial set of data and said I/O operation is issued while said background copy operation has not complete. (col. 15, lines 44-col. 16, lines 1-44)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6, 17, 18, 29, 30, 38, 39, and 48-51, are rejected under 35 U.S.C. 103(a) as being unpatentable over *West et al.*, (6,446,175) and *Milillo et al.*, (6,457,109).

As per claims 5, 6, 17, 18, 29, 30, 38, and 39, *West* discloses sending an acknowledgement from the secondary volume to the primary volume once the copy command (snapshot) is complete but is silent in explicitly disclosing the primary volume destroying the connection between the primary and the secondary after receiving the acknowledgement. However, *Milillo* teaches a similar system of *West* that explicitly teaches destroying the connection between the primary and the secondary after the copy command (snapshot) is complete. It would have been obvious to one of ordinary skill to implement *Milillo*'s operation of destroying the connection between the primary and secondary volume with *West*, because doing so would save system resources between copy operations. (*Milillo*, col. 6, lines 45-col. 8, lines 1-29)

As per claims 48-51, *West* does not expressly teach the use of dynamic or static configuration data in said table containing configuration information (configuration memory, 226, Fig.2) for the primary and secondary volume. However, *Milillo* teaches having static configuration that ensures the path, subsystem, are available for processing the command. (*Milillo*, col. 7, lines 1-4) *Milillo* also teaches a method of dynamic configuration when indicating that a path between a primary volume and a secondary volume will be terminated. (*Milillo*, col. 7, lines 62-67) It would have been obvious to one of ordinary skill that to implement *Milillo*'s method of static and dynamic configurations, because doing so enable *West* to update the local copy related to the current configuration data. (*Milillo*, col. 7, lines 34-39)

### ***Conclusion***

Applicant's arguments with respect to claims 1-52 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tammara Peyton whose telephone number is (703) 306-5508. The examiner can normally be reached between 6:30 - 4:00 from Monday to Thursday, (I am off every first Friday), and 6:30-3:00 every second Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A. Gaffin, can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3718. Any inquiry of a general nature of relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Mailed responses to this action should be sent to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231.

Faxes for Official/formal (After Final) communications or for informal or draft communications (please label "PROPOSED" or "DRAFT") sent to:

(703) 872-9306

Hand-delivered responses should be brought to:

USTPO, 2011 South Clark Place, Customer Window  
Crystal Plaza Two, Lobby Room 1B03, Arlington, VA, 22202 Crystal Park II, 2121.

Tammara Peyton

January 15, 2004



JEFFREY GAFFEN  
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